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**BRIEF NOTES ON MOSQUITO LARVÆ.**

BY HARRISON G. DYAR, A.M., PH.D.,

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PARTIAL REGENERATION OF ANTENNÆ IN *CULEX DYARI* COQ. — Dr. Geo. Dimmock sent some *Culex dyari* larvæ from Springfield, Mass., by mail. They were damaged in transit, many being killed, while some of those that survived had lost the antennæ. They were in stage iii and, on molting to the last stage, the antennæ were partly regenerated. The antenna in this species is very long and conspicuous, slightly swollen, white with black base and tip, the outer fourth contracted, bearing a tuft at the contraction, two hairs toward tip and a long and short spine at apex. The regenerated member consisted of an elliptical bladder-shaped organ only about twice as long as wide, spinose, but without any hair tuft or terminal hairs.

OVIPOSITION OF *CULEX ATROPALPUS* COQ. — I have noted the egg laying of the autumnal specimens of this species (Ent. News, XIV, 180, 1903). In order to test whether there is more than a single brood annually, I secured early larvæ from the pot holes at the Stubble-field Falls of the Potomac. I found the larvæ well grown on May 10. Imagoes began to issue toward the end of May and laid eggs freely within two weeks of emergence. The eggs hatched in three days, showing that there is more than one annual brood. The interesting point observed is that the early eggs are not laid like the late fall ones in patches firmly adhering to the side of the vessel, but loosely and separately, scattered mostly over the surface of the water.

OCCURRENCE OF *CULEX AURIFER* COQ. — Mr. J. Turner Brakeley writes that the last of the larvæ of this species had completed their transformation in May and no more would be found during the season. He had pupæ as early as April 28. As noted by Smith (Ent. News, XV, 148, 1904), Mr. Brakeley finds the larvæ in a cranberry bog pool held by two dams at right angles to each other, the pool being about sixty feet long by thirty feet wide. He has also found them in a "five boy," an unusual place for mosquito larvæ, since it contains flowing water. A "five boy" is a pit, five by six feet and six feet deep at the foot of a dam of a cranberry bog, into which the water pours before entering the drainage trench. Dr. Geo. Dimmock has collected the larvæ at Springfield, Mass., under the number 2175.

I would note, as corrective of Smith's published figure, that the anal segment is not correctly drawn. It is represented as ringed by the plate, which is not the case.

OCCURRENCE OF *CULEX DISCOLOR* COQ. — The larvæ occurred on May 18 at Grassymead, Va., near Mount Vernon, in a temporary roadside puddle, in company with *C. jamaicensis*, *C. restuans* and *Psorophora ciliata*. The puddle was dry a week later. The larva has a peculiar habit of lying on the bottom on its back with the four, stiff anal gills erect and divergent and the mouth brushes fanning continuously.

OCCURRENCE OF *JANTHINOSOMA MUSICUM* SAY. — The larvæ occurred on May 21 at Grassymead, Va., in a temporary roadside puddle, in company with *Culex sylvestris*. The single larva collected was completely covered with the little stalked Protozoon, *Vorticella*. It pupated, leaving the *Vorticella* attached to the cast skin. The larva is recognizable by its long antennæ. It has a general resemblance to *Culex jamaicensis*.

OCCURRENCE OF *CULEX SALINARIUS* COQ. — The larvæ were found to be abundant in all stages in a large grassy swamp, near Chesapeake Beach, Md., on June 8. The swamp is within a few rods of the bay, but separated therefrom by a wide strip of sand covered with trees, and is not perceptibly salt. It is overgrown in places with *Lemna* and contains other fresh water organisms. Smith states that the larvæ inhabit salt marshes only, but I think this statement liable to correction. Mr. F. Knab took several larvæ, indistinguishable from *salinarius*, from a rain water barrel at Springfield, Mass., and I have found them in a similar situation at Washington, D. C.

LARVA OF *CULEX VITTATUS* THEOB. — The adults referred to by me as *Culex cantans* (Proc. Ent. Soc. Wash., VI, 38, 1904) and the larvæ described under the same name (Journ. N. Y. Ent. Soc., XII, 36, 1904) should be referred to *vittatus*. Mr. Coquillett finds that, while very close to *cantans*, they agree with Theobald's description, published since he made the first identification, and with specimens from Theobald's type locality. Unfortunately the figure and description of the larva given by Theobald (Can. Ent., XXXV, 313, 1903) are very unlike mine, especially in the proportions of the air tube, which will necessitate renewed breeding experiments to clear up the contradiction. It seems possible that the larva described by Theobald is not correctly associated. The figure would pass for *Theobaldia incidens*, which species is likewise recorded in the article, but without larval notes.

AS TO *CULEX CANTANS* MEIG. — This species is a prolific source of confusion. I notice that the dissected larva sent in by Mr. Johannsen, and presumably the original of his figures (Bull. 68, N. Y. State Mus., 420, 1903, pl. 45) is not *cantans*, but *canadensis*. His figures should be cited under *canadensis*, but the character used in the synoptic table (p. 416) is correct for *cantans*. Add to this the confusion noted above between *vittatus* and *cantans* and the two very different larvæ producing apparently indistinguishable adults, noted by Mr. Knab and myself (Proc. Ent. Soc. Wash., VI, 143, 1904).

IDENTITY OF *CULEX REPTANS* MEIG. — If the European *reptans* (*nemorosus* Meig.) really exists in America, it is the form *trichurus* Dyar, described in this issue of the Journal, to judge by Meinert's figures (Vid. Selsk. Skr., 6, III, 4, Pl. I, figs. 17-19, 1886), and not either of the three forms called *impiger* Walk., *reptans* Meig., and *puncator* Kirby in my paper on British Columbian mosquitoes (Proc. Ent. Soc. Wash., VI, 37, 1904). The four American forms are very closely allied as adults, though the larvæ are distinct enough. *Trichurus* differs from Meinert's figures of *nemorosus* in that the tufts on the tube are more numerous and multiple. Meinert figures but two single dorsal hairs, while *trichurus* has a double row of about six tufts.

WHOLESALE SLAUGHTER. — A large colony of *Culex sollicitans* Walk. hatched on the salt marsh near Noyes Beach, R. I., about June 29, following rain. By July 5, the marsh had gone dry and myriads of dead larvæ were observed. They had gathered in the lowest depressions, and in one wheel rut their bodies covered the ground in a solid mass two inches wide and five or six feet long.

A CASE OF ANEMOTROPISM.\* — It may be worth while to place on record the following instance, which was sent me by the Rev. C. C. Carpenter, of Andover, Mass., who under date of April 20, 1896, wrote me as follows:

"A friend was down at Marshfield or Scituate the other day, and sitting on the dunes near the water watched for hours a steady and large stream of small flies going northeast, against the wind, for hours and hours, in perfect order and symmetry. He is curious to know whether they were migrating — or what. I suppose you know." Unfortunately no specimens were sent me, so that the species is unknown. — A. S. PACKARD, Providence, R. I.

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\* Prof. W. M. Wheeler has noticed this phenomenon in *Bibio* and also in *Chironomus* (Archiv für Entwicklungsmechanik der Organismen, VIII, p. 373, 1899.)